

Interpretation of Compound Motion for Binary System (Pluto – Charon) by Compound Balance Balls Hypothesis



Towards Supporting the Global Plan For Sustainable Development 2030
Planetearth Forum: Peace For Sustainable Development
Organize a seminar supporting goal No.4 Quality Education entitled:
Interpretation of Compound Motion for Binary System
(Pluto - Charon)
By Compound Balance Balls Hypothesis
Astronomer : Adnan A.Al-Shawafi

On Tuesday 16.February 2016 - Sana'a University at Science & Technology Center - Seminar Hall at 10:00 Am

For Astronomer:

Adnan A. Al-Shawafi

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Interpretation of Compound Motion for Binary System (Pluto – Charon)by Compound Balance Balls Hypothesis

For Astronomer: Adnan Alshawafi

ABSTRACT

Observations by NASA regarding the binary system (Pluto - Charon), such as Charon's orbital velocity doesn't match conclusions of the Orbital Velocity law and at the same time contradicts with other data which are in themselves contradictory to applicable laws like gravity laws and Kepler's laws about planetary motion, as well as the orbital motion of Pluto and Charon is very complex and far beyond information released by NASA with respect to binary system motion. Being so complex, New Horizon managed to described it as complex orbital dance.

In addition GM of Pluto's moons poses paradoxes to the extent making it unrealistic, because they say that Charon's mass is very bigger than we what we think or that the mass of other moons unrealistic to get us to say Steix's mass and Kerberos's mass are close to zero, which is not logical.

We know NASA and other institutions around the world are tell the truth when it comes to data generated through observation , particularly NASA - the leading research agency.

But the question, though they tell the truth, data are still contradictory? Leading to confessing interpretations because scientists relay more on go to theory which is not substantiated, This contradiction and confusion was supposed to be Clear field by New Horizon probe, being the key to understand other mysteries, during its flyby last July, on its way to the Kuiper belt.

This seminar is an attempt to add new concept to explain the compound motion of binary system by applying laws six and seven of the Compound Balance Balls Hypothesis (Hypothesis-CBB), which was published by the researcher in his book entitled "Compound Balance Balls Hypothesis... Approach In Astronomy" which considered the gravity force as outcome orbs motion (rotation).

This hypothesis refute the idea that barycenter (common center of gravity) to be outside the bodies in case of binary orbs And the way published about Pluto and Charon by NASA. The Hypothesis proves there is no correlation between mass and orbital velocity as well as mass and balance of orbs. And the gravity constant (G) is the core of the problem to calculate the mass of orbs in outside the system of Planets around the Sun, such as the mass of Pluto's moons. The Hypothesis proves that the orbital velocity is proportional to the square root of the semi-major axis (a).

CBB Hypothesis contributes to the develop being sciences and solving problems in astrophysics, the interpretation of cosmic phenomena. The Hypothesis modified some the applicable laws and confirms what NASA says based on observations.

PRESENTATION STEPS

- **The problems**
- **Objectives.**
- **Proving problems.**
- **Solutions and Interpretations.**

PROBLEMS

- Proved data about Pluto and Charon published by New Horizon or NASA or other resources, are a contradictory and are not applicable to the physics laws , such as orbital velocity laws, gravity laws and Kepler's laws to eventually get identical results with those observed by NASA, especially in binary system, .for this resone, we chose Pluto- Charon system to showcase the problem.
- The motion of Pluto and Charon don't simulate that the motion as boot forward by NASA about binary motion, where Pluto and Charon are orbiting around barycenter (common gravity center) located above the surface of Pluto. Also Motions as observed by New Horizon occurs outside the supposed model, hence , they described it as complex orbital dance.
- Masses of Pluto's moons reflect uncertainties both systematic and random measurement errors,as we had two options:, either Charon's mass is be too large or that masses of other moon's are very small, for example, masses of Kerberos and Steix close to zero.
- The problem of GM of Pluto's moons is part of a prodder problem, at both smalls systems and large systems, including how to calculate the velocity of stars on the edge of galaxies. and other inter-related existing problems in astrophysics. Today, we are faced with contradictions, like the difference between relativity and quantum theory , what max the dark matter and gravity... etc.

OBJECTIVES

- Interpretation of the binary system motion (Pluto and Charon) as put by CBB Hypothesis refute other interpretations not enhanced with evidence which say binary system (Pluto and Charon) have barycenter (common gravity center) in- between them and outside their bodies.
- Demonstrate that laws six and seven in CBB Hypothesis are the solution for problems standing in front of physics science, because the Inverse-square law of Newton and the G (constant of general attractions) set by Henry Cavendish based on experiment" Earth weight," .Inverse-square law achieved success result regarding the gravity of Earth, and to some extent planets within the solar system. Beyond that, it is considered a problem, both for larger system (stars around a galaxy) and smaller system (moons around planet).
- Demonstrate that orbital velocity is inversely proportional to the square root of the distance at tropical levels of the celestial body (celestial body is that which has smaller orbs orbiting around it).
- According to the hypothesis-CBB the GM (mass ×constant of attraction) is a constant, because no relation exists between mass and orbital velocity and also between mass and the balance of celestial bodies.
- The orbital velocity is proportional to the square root of the Semi-major axis both in the non-binary system and binary system.
- What is called by New Horizon complex orbital dance is just movement carefully studied in CBB Hypothesis, which also reveals the mystery about Pluto and Charon.
This seminar invites scientific authorities and research centers to apply CBB Hypothesis on a large scale because it raises a new concept to serve science by trying to predict the source of gravity. CBB Hypothesis describes the gravity as vested force as a result of the orb's rotation in the space, in other words gravity can be generated by rotation, so this concept supporting us to control satellite and develop solar sail etc.

PROVING PROBLEMS

Pluto and Charon data sheet released by NASA (<http://nssdc.gsfc.nasa.gov>)

Pluto and Charon Fact Sheet by NASA		
	Pluto	Charon
Mass (10 ²¹ kg)	13.03	1.586
Equatorial radius (km)	1187	606
Semimajor axis (10 ⁶ km)	5906.38	
Mean orbital velocity (km/s)	4.67	
Orbit inclination (deg)	17.16	
Sidereal orbit period (days)	90,560	6.3872
Tropical orbit period (days)	Unknown	
Sidereal rotation period (days)		6.3872
Sidereal rotation period (hrs)	-153.2928	
Mean distance from Pluto (km)		19,596
Orbital inclination to Pluto (deg)		0.00005
Orbital eccentricity	0.2488	0

From the previous data

We begin to calculate the orbital velocity of Charon around Pluto

According to data the orbital eccentricity of Charon around Pluto is approximately equal to zero according to data by NASA, that means that orbit of Charon around Pluto close to the circle, So we can apply both circuit laws or integration to find the same results accurate 99.9% at least, to calculate the circumference of Charon's orbit around Pluto, to reach the average of orbital velocity of Charon.

Steps

Calculate the circumference of Charon's orbit around Pluto

Almost equal to the circumference of a circle with a radius of approximately **19 596 km... (1) ***

$$C = 2\pi r$$

$$= 2 \times 3,14159 \times 19596000 \text{ m}$$

$$= 123,125,195 \text{ meters}$$

calculate the average orbital velocity of Charon, we apply the law of Velocity

velocity = distance / time

$$= \text{circumference of Charon's orbit} \div \text{Charon's orbital period (where day = 86400 seconds)}$$

$$= 123,125,195 \div (6.3872 \times 86,400)$$

$$\text{velocity} = 223.11 \text{ m/s} \dots (1)**$$

From the above result of orbital velocity of Charon does not match with that released by New Horizon*. according to the article .jhuapl.edu titled "stellar Illumination" with the adoption of orbital velocity of Charon around Pluto and the amount of **0.23 kilometer"** this information based on observation way (fact).

We have to know how catch that through the following copy from an article.

The velocity used here is the relative velocity, which accounts for Earth's orbital velocity as well as the orbital velocity of the Pluto/Charon system. Note, we are not concerned with the rate Charon orbits Pluto, but the rate at which they orbit the Sun. And for the duration of the occultation (about 50 sec) we can assume Charon is stationary with respect to Pluto (i.e. we ignore Charon's orbital velocity about Pluto, which is quite small anyway at 0.23 km/s).

The relative velocity is simply Earth's velocity – Pluto's velocity, or:
 $\text{Velocity}_{\text{rel}} = 29.78 \text{ km/s} - 4.74 \text{ km/s} = 25.04 \text{ km/s}$

Note: we subtract Pluto's velocity from Earth's because Pluto is orbiting slower or has a smaller orbital velocity than Earth's.

Now we just need to plug our velocity_{rel} and the time of the occultation into our general velocity equation to solve for the distance or diameter of Charon!

$$\begin{aligned} \text{Distance} &= (\text{velocity}_{\text{rel}}) * (\text{time}) \\ \text{Distance} &= (25.04 \text{ km/s}) * (50 \text{ s}) = 1252 \text{ km} \end{aligned}$$

Therefore, the diameter of Charon is about 1252 km. Since the currently accepted value of the diameter is 1212 km, we are pretty close!

We understand from the article that they linked orbital velocity with diameter of Charon was 1252 km.

But according to NASA the diameter of Charon is

$$2 \times \text{radius} = 2 \times 606 = 1212$$

That means we have to update the orbital velocity of Charon that released by New Horizon

$$230 \text{ m} \times 1212 \div 1252 = 223 \text{ m/s approximately}$$

According to the article they were proud to reached this fact

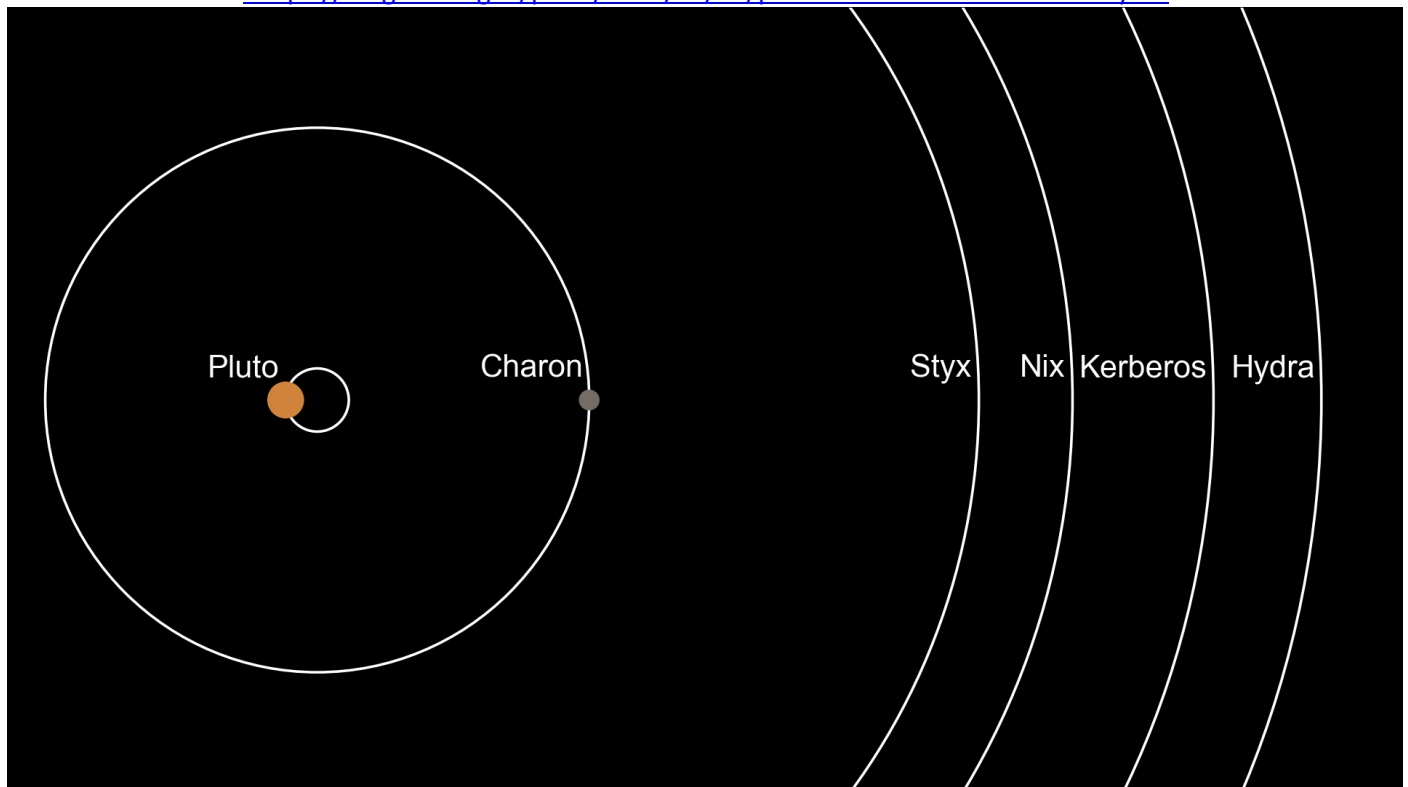
Because everything look like excellent from a narrow angle

I think that does not lead to splurge because it foretells the problem.

What is the problem?

The orbital velocity of Charon can't be 230 m or 223 m/s, because Charon is not orbiting around the center of Pluto according to NASA's drawing below This is what we know about the binary system (Pluto and Charon).

[/https://blogs.nasa.gov/pluto/2015/10/05/plutos-small-moons-nix-and-hydra](https://blogs.nasa.gov/pluto/2015/10/05/plutos-small-moons-nix-and-hydra)



Today, the scientists around the world and NASA agree with this drawing which has the explanation of the binary motion of Pluto and Charon.

This is the meaning the astronomical observations according to New Horizon about Charon orbital velocity is 230metersper second and we have modified it to 223metersper second might be wrong?

To check the problem

We can use of orbital velocity laws, the mathematical equations of orbital velocity.

There are two equations

First equation:

If the Charon's masses a big relatively to Pluto's mass.

Back to the first table of data by NASA

Charon mass is greater than one tenth the mass of Pluto that means Charon's mass is very larger relatively to Pluto's mass, undoubtedly calculate the orbital velocity as an equation of mass and take into account Charon's mass.

$$v_o \approx \sqrt{\frac{m_2^2 G}{(m_1 + m_2)r}}$$

Where:

r = radius represents the dimension between the centers of Pluto and centers of Charon:

m_1 = orb's mass that we want to calculate its orbital velocity(Charon)

m_2 = Orb's mass (Pluto)

$$G = 6.67428 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2} = 6.67428 \times 10^{-11} \text{ N (m/kg)}^2$$

Compensation in the equation above by data from NASA

Charon's orbital velocity is=198.91 m/ s....(2)**

This does not congruent with that released by New Horizons

But still a logical orbital velocity enhanced by mathematical equations.

Through this orbital velocity resulting based on mass of Pluto and Charon as a binary system

Now:

We calculate the distance between Charon and barycenter as follows:

First we find

Charon's orbit circumference (C)=

distance(mileage)= velocity $\times$ time

$$= 198.91 \times 6.3872 \times 86400 = 109,769,295 \text{ meters}$$

Second we find

The distance between Charon and barycenter is approximately equal according to the laws of the circuit

$$R = C \times 2\pi$$

$$R = 109,769,295 \div 2 \div 3.14159 = \mathbf{17,470,000 \text{ m} \dots (2)^* \text{ (between Charon and barycenter)}}$$

This seem logical and enhanced mathematical proofs and drawings by NASA theoretically and abstract reasoning goes to support this outcome by orbital velocity law must therefore orbital velocity to be Charon is 198.91 m $\square$ s not as come by New Horizon.

And that the axis of Charon orbiting around the center of the common gravity center is approximately equal to 17,470 km

Which is equal a semi- major axis because the orbit is almost perfectly circular.

To confirm that Charon with Pluto is a binary system on this distance

We have to prove that Pluto reciprocates balance on the rest of the distance commensurate with its mass, which controls the basis of gravity and balancing.

We used the same mathematical equations of orbital velocity.

$$v_o \approx \sqrt{\frac{m_2^2 G}{(m_1 + m_2)r}}$$

Where:

r = radius represents the dimension between the centers of Pluto and Charon:

m_1 = orb's mass that we want to calculate its orbital velocity(Pluto here)

m_2 = mass of Charon

$$G = 6.67428 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2} = 6.67428 \times 10^{-11} \text{ N (m/kg)}^2$$

Compensation in the equation above by data from NASA

So the **Pluto orbital velocity around the barycenter = 24.21 m $\square$ s**

Now:

we calculate the circumference for Pluto orbit around barycenter along through Pluto's orbital velocity around the common center of gravity = $24.21 \times 6.3872 \times 86400 = 13,360,387$ meters

Second

we calculate distance between Pluto and barycenter is approximately equal according to the laws of the circuit

$$C = 2\pi R$$

$$R = C \square 2\pi$$

= 13,360,387 ÷ 2 ÷ 3.14159 = **2,126,000 meters. (distance between Pluto and barycenter)**

Check this result with the previous result of Charon with NASA's data

17470 +2126 km = 19 596 km is identical with NASA's data

Check for a second time by another way

1 - orbital velocity of Pluto × mass = 24.21 × 13.03 × 1021 = 315.46 × 10²¹

2. orbital velocity of Charon × mass = 198.91 × 1.586 × 1021 = 315.47 × 10²¹

And this result gives us a scientific confirmation of the validity of the binary system Pluto and Charon

So the orbital velocity of Charon around the barycenter is=198.91 m s²

This is for sure, and an investigator of gravity and orbital velocity laws.

And it does not match according New Horizon,230m s²

Keep the possibility that Charon is not binary with Pluto because might be its mass smaller than NASA's data or close to zero.

To check the maximum of Charon's orbital velocity, if its mass too small.

We use the following mathematical equation

This equation use to find the maximum orbital velocity if the central orb is too big and the other is too small like to find the orbital velocity of the planets around the Sun, because Sun's mass is a very large mass in front of the mass of Planets.

$$v_o \approx \sqrt{\frac{\mu}{r}}$$

Where:

$$\mu = GM$$

G= Gravitational constant

$$G = 6.67428 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2} = 6.67428 \times 10^{-11} \text{ N(m/kg)}^2$$

M= mass of Pluto

R=Radius(distance between Pluto and Charon)

Compensation in the equation above by data from NASA

The maximum orbital velocity for Charon around Pluto=210.66m s²

It is not equal with that released by New Horizon

The different conclusions of orbital velocity of Charon led us to different semi-major axis for Charon's orbital around Pluto.

- 1- 198.91 m □ s that means semi-major axis is 17470 Km, if Charon orbiting around barycenter.
- 2- 223 m □ s that means semi-major axis is 19596 Km, if Charon orbiting around Pluto's center.

We can use Kepler`s third law to confirm one of them is a semi major axis of the orbit of Charon.

According to the following table:

Orbs	Orbital Period	Orbital Velocity	Semi-major axis		Constant by Kepler`s law in the three result of semimajor axis	
	day/μs	/m-s	M (1)*	M (2)*	$\frac{P^2}{a^3} = constant$ first result× 10 ⁻¹⁵	Scand result × 10 ⁻¹⁵
Chron	551,854	223	19,596,000		40,471.21318	
	551,854	199		17,470,000		57,117.58025
Nix	2,147,040	143	48,690,000		39,935.66747	39,935.66747
Hidra	3,300,480	123	64,720,000		40,182.66021	40,182.66021
Kerberos	2,779,488	131	57,750,000		40,111.93761	40,111.93761
Styx	1,741,824	153	42,410,000		39,774.40789	39,774.40789
The largest number					40,471.21318	57,117.58025
The smallest number					39,774.40789	39,774.40789
Deviation =((The largest number-The smallest number) ÷ The largest number)×100					1.75	43.60

From the table thus ,Kepler's third law prove that the semi-major axis for Charon's orbital around Pluto is 19,596 km, and this strengthened the evidence of the New Horizons about the orbital velocity of Charon to be in the range of 223 m s⁻¹. In the same time on the contrary from the law of orbital velocity and Pluto –Charon is a binary system where they are orbiting around barycenter. Previous problem led them to a series of other problems.

The meaning of cannot apply Kepler's third law and the law of orbital velocity on NASA's data to give us identical result , this is just a way to the biggest problem.

The different conclusions between orbital velocity of Charon by the laws of orbital velocity and what was observed according to New Horizon, that make the masses of Pluto's moons reflect uncertainties both systematic and random measurement errors , we enumerate scientific studies to prove that, the contrast in the GM for binary system Pluto and Charon is a known problem for decades, it is not a modern and connected with New Horizon, it observed in great accuracy, but we expected that the New Horizon mission gave us a logical solutions to recognize the uncertainty and inconsistency in that data etc.

This problem earmarked since decades, According to scientific article **No. IS965494** on **ICARUS 125, 254-260 (1997)** in titled" The Orbit of Charon-I. New Hubble Space Telescope Observation" By **DAVID J. THOLEN** – Institute for Astronomy, University of Hawaii. AND **MARC W. BUIE**– Lowell Observatory. " The orbit of Charon has been determined from 60 images of the Pluto-Charon system acquired with the Hubble Space Telescope Wide Field and Planetary Camera between 1992 May 21 and 1993 August 18. The semi-major axis was found to be 19636±8 km, in good agreement with an older determination upon . Contrary to expectation based which mutual-event-based radius computations have relied, but significantly larger than two other recent determinations. Contrary to expectation based on the tidal evolution of the system, a surprisingly large eccentricity of 0.0076±0.0005 was found, with the line of apsides aligned nearly along the line of sight from Earth." Also " The system GM derived from our data is 981.5 ±1.1 km³sec⁻². Some information on the Charon □ Pluto mass ratio is present in the data, though our determinations, of $0.110^{+0.063}_{-0.056}$ does not improve on previous determinations, or resolve the discrepancy between them." The article contained a lot of data like following charts, which shows the Charon's orbital motion.

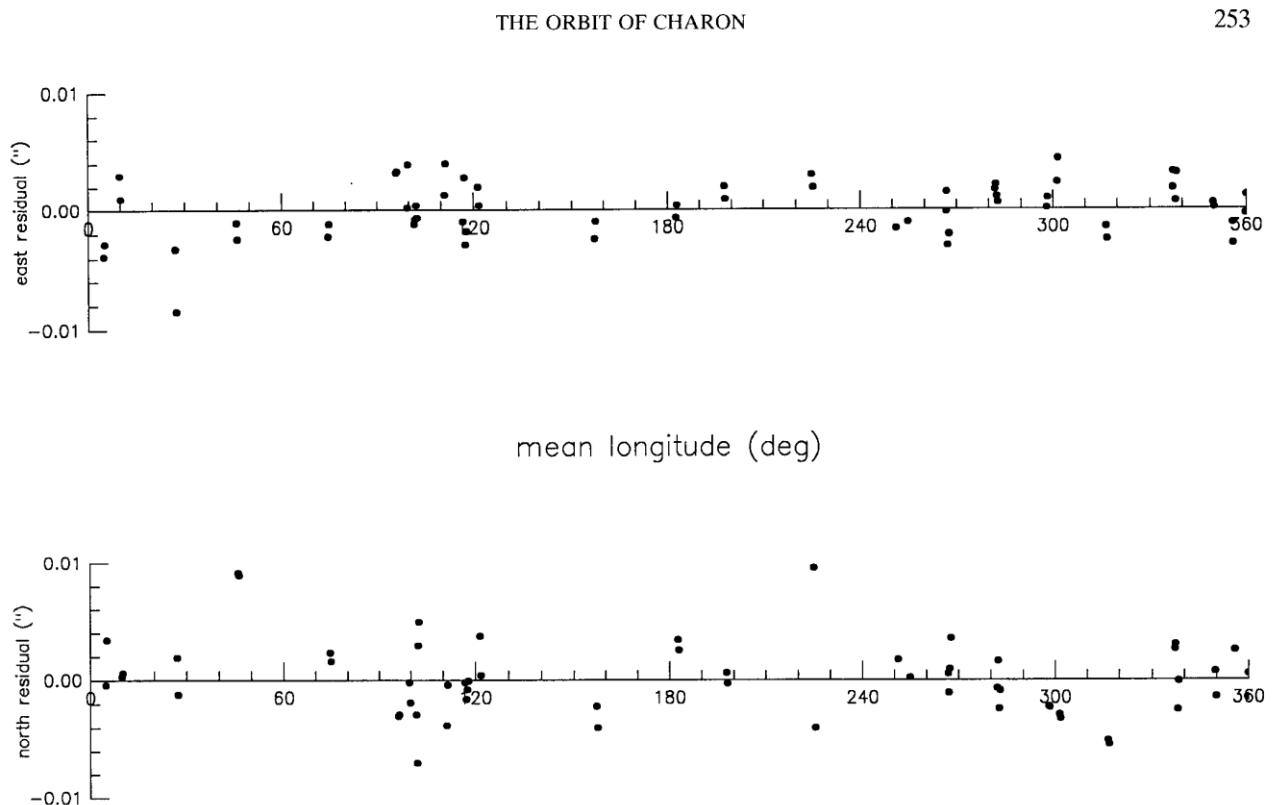


FIG. 4. Orbit solution residuals. The top plot shows the east residual in arcseconds, while the bottom plot shows the north residual in arcseconds. Except for the six observations that fall the closest to minimum separation (near 27°, 46°, and 225° mean longitude), the average residual is 0.0024 arcsec. The remaining six observations show an average residual of 0.0060 arcsec.

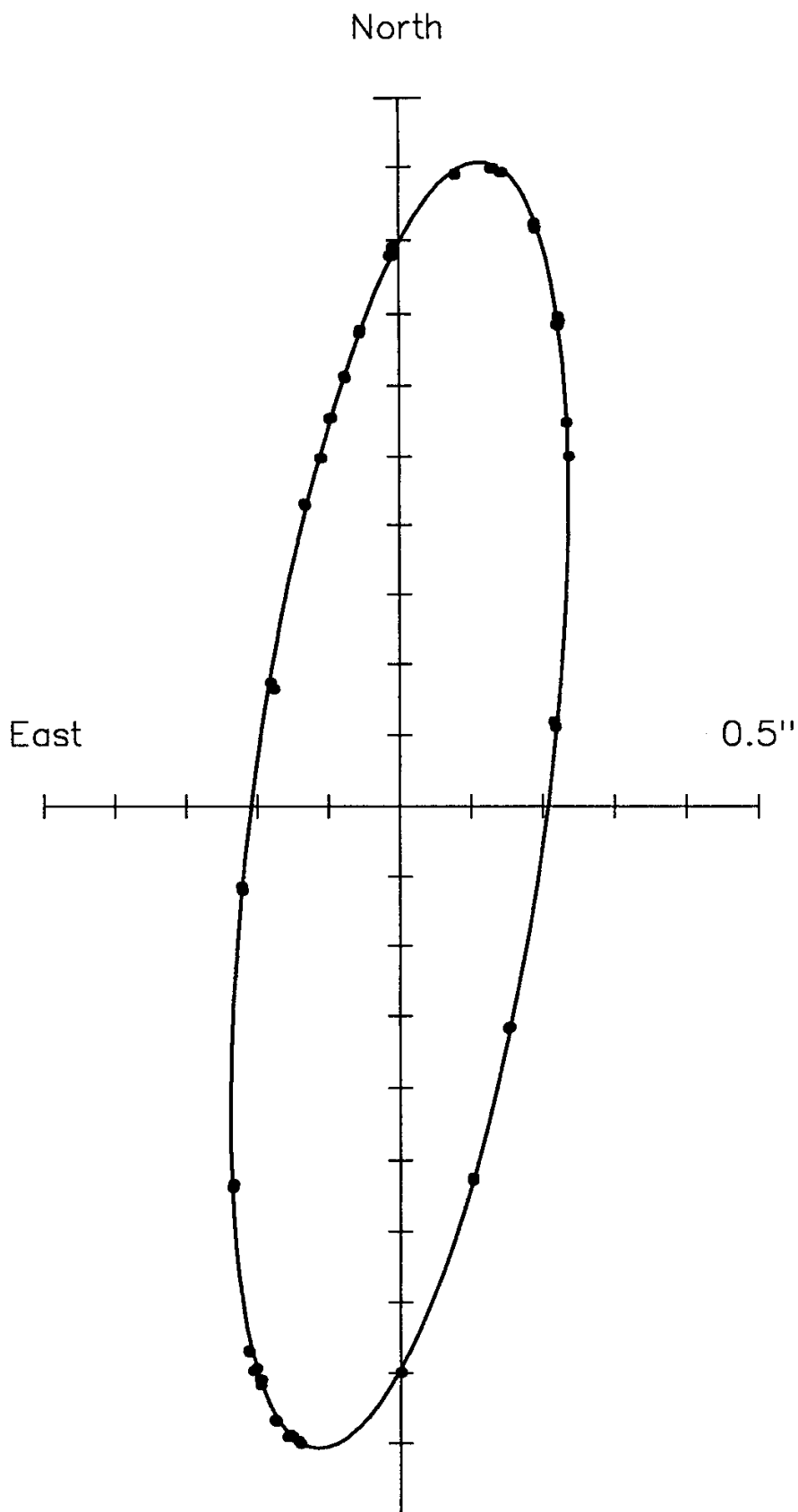


FIG. 3. The orbit of Charon. The dots represent the observations, and the solid curve represents the fitted orbit. To minimize the scatter produced by the varying sub-Earth latitude and topocentric distance during the fifteen months spanned by the observations, the data have been corrected to the single orbit interval centered on the epoch 1993 February 22. The orbital angular momentum vector points roughly toward the west, and the eastern portion of the orbit passes on the near side of Pluto.

Is this problem still or they discovered the reasons and resolved today?

we enumerate a new scientific article after the probe-New Horizons flyby close to Pluto on last July when we expected gave us new information to resolve the problem, but the stills on the Old Testament.

The scientific article on **ICARUS ICARUS 246 (2015) 317–329** in titled" The orbits and masses of satellites of Pluto"

by **Marina Brozovic^{a*}, Mark R. Showalter^b, Robert A. Jacobson^a, Marc W. Buie^c** .

a Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109-8099, USA

b SETI, Mountain View, CA 94043, USA

c SWRI, Boulder, CO 80302, USA

The article says "present the numerically integrated orbits of Pluto's satellites. The orbits have been fit to a data set that includes Earth-based and Hubble Space Telescope (HST) astrometry of Charon, Nix, Hydra, Kerberos, and Styx, as well as the light curves from the Pluto–Charon mutual events." Also "All satellites are in near-resonance conditions, but we did not uncover any resonant arguments. Our model yields $975.5 \pm 1.5 \text{ km}^3 \text{ s}^{-2}$, $869.6 \pm 1.8 \text{ km}^3 \text{ s}^{-2}$, and $105.9 \pm 1.0 \text{ km}^3 \text{ s}^{-2}$ for the system's, Pluto's, and Charon's GM values. The uncertainties reflect both systematic and random measurement errors. The GM values imply a bulk density of $1.89 \pm 0.06 \text{ g cm}^{-3}$ for Pluto and $1.72 \pm 0.02 \text{ g cm}^{-3}$ for Charon. We also obtain $\text{GM}_{\text{Nix}} = 0.0030 \pm 0.0027 \text{ km}^3 \text{ s}^{-2}$, $\text{GM}_{\text{Hydra}} = 0.0032 \pm 0.0028 \text{ km}^3 \text{ s}^{-2}$, $\text{GM}_{\text{Kerberos}} = 0.0011 \pm 0.0006 \text{ km}^3 \text{ s}^{-2}$, and an upper bound on Styx's GM of $0.0010 \text{ km}^3 \text{ s}^{-2}$."

This table copied from the article and shows how much GM different for planets of the solar system.

Dynamical constants.

Constant	Value	Reference
Jovian system GM ($\text{km}^3 \text{ s}^{-2}$)	126712764.8000	Folkner et al. (2014)
Saturnian system GM ($\text{km}^3 \text{ s}^{-2}$)	37940585.2000	Jacobson (2006)
Uranian system GM ($\text{km}^3 \text{ s}^{-2}$)	5794568.6000	Jacobson et al. (1992)
Neptunian system GM ($\text{km}^3 \text{ s}^{-2}$)	6836527.1000	Jacobson (2009)
Sun GM ($\text{km}^3 \text{ s}^{-2}$)	13271323263.9000	Folkner et al. (2014)

List of the external perturbers that are included in the orbital integration.

The Sun's GM is augmented by the masses of the inner planets and the Moon.

This will lead us to the problem of GM in the larger systems like a galaxies, such as the velocity of stars to prove this we enumerate flawing scientific article on Astronomical and Astrophysics.

Reference to the scientific article on A&A 447, **49-62 (2006)** DOI: **10.1051/0004-6361:20053210**

In titled" I study of the warped spiral galaxy NGC 5055: a disk/dark matter halo offset?"

G. Battaglia¹ - F. Fraternali² - T. Oosterloo³ - R. Sancisi⁴

1 - Kapteyn Astronomical Institute, Postbus 800, 9700 AV, Groningen, The Netherlands

2 - Theoretical Physics, University of Oxford, 1 Keble Road, OX1 3NP, Oxford, UK

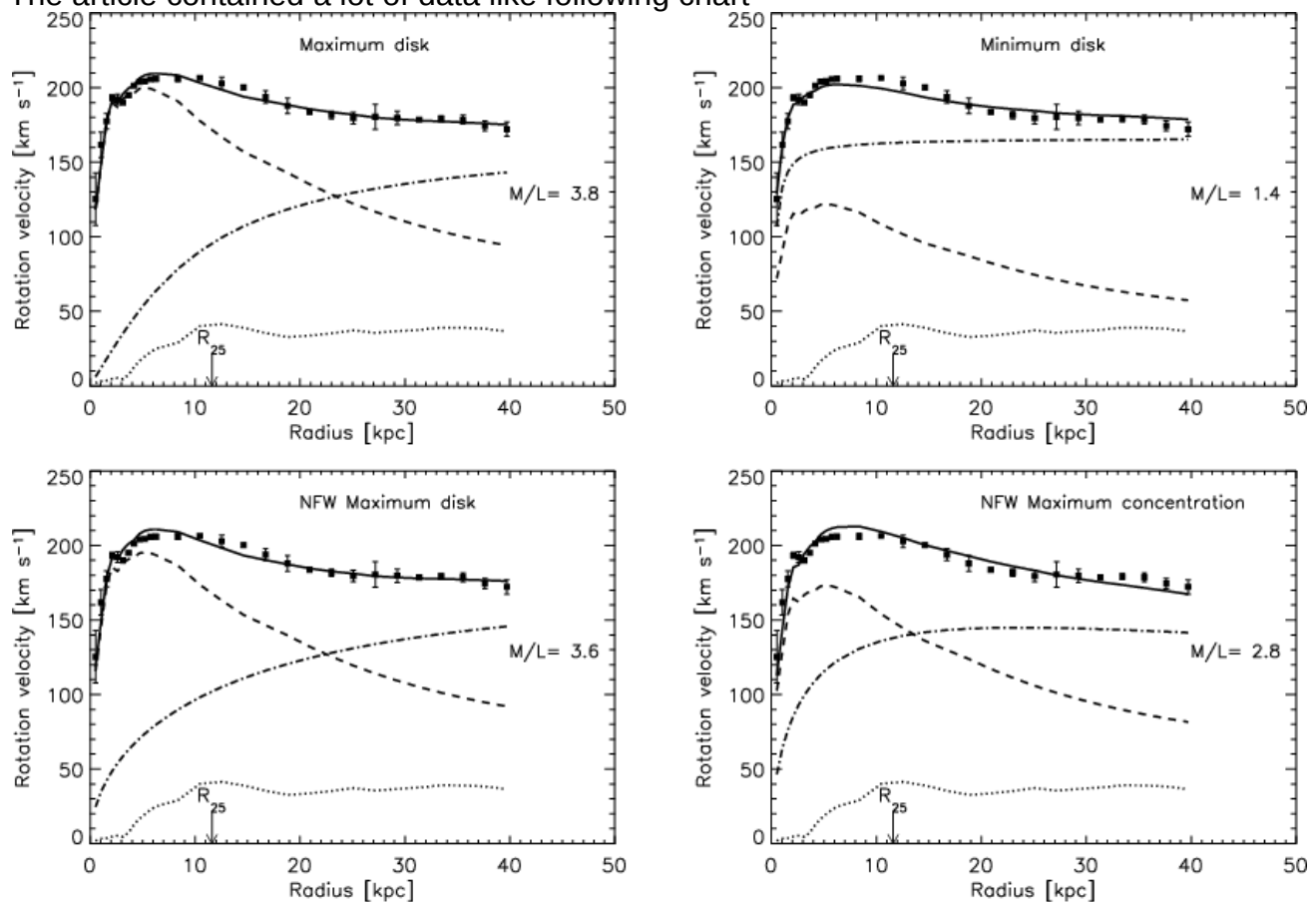
3 - ASTRON, Postbus 2, 7990 AA, Dwingeloo, The Netherlands

4 - INAF - Osservatorio Astronomico, via Ranzani 1, 40127, Bologna, Italy and Kapteyn Astronomical Institute, University of Groningen, PO Box 800, The Netherlands

The article say "present a study of the H I distribution and dynamics of the nearby spiral galaxy NGC 5055 based on observations with the Westerbork Synthesis Radio Telescope. The gaseous disk of NGC 5055 extends out to about 40 kpc, equal to $3.5 R_{25}$, and shows a pronounced warp that starts at the end of the bright optical disk ($R_{25} = 11.6 \text{ kpc}$). This very extended warp has large-scale symmetry, which along with the rotation period of its outer parts ($\approx 1.5 \text{ Gyr}$ at 40 kpc), suggests a long-lived phenomenon. The rotation curve rises steeply in the central parts up to the maximum velocity ($V_{\text{max}} \approx \text{km s}^{-1}$). Beyond the bright stellar disk (R_{25}), it shows a decline of about 25 km s^{-1} and then remains flat out to the last measured point.

The standard analysis with luminous and dark matter components shows the dynamical importance of the disk."

The article contained a lot of data like following chart



"Figure 14: Mass models for NGC 5055. The contributions of the different mass components to the observed circular velocities are shown: gas (dotted line), stars (dashed line), and DM halo (dash-dot line). The full thick line shows the total contribution to the rotation velocity." According to the article.

They are aware of the problem, but say it's because the dark matter that mysterious force.

We add to the previous the beyond motion for Charon and Pluto outside patterns that described by NASA that beyond motion described by New Horizon a complex orbital dance, also there are an article in **The Planetary Society** was Posted by **Emily Lakdawalla** on 2015/11/10In titled"DPS 2015: Pluto's small moons Styx, Nix, Kerberos, and Hydra [UPDATED]"According to the article "The most surprising results are the rotation states of the moons. To explain why they're surprising, consider the regular satellites in the solar system. Very nearly all of the moons that formed around the planets -- the so-called regular moons -- are locked in synchronous rotation, where their rotational axes are perpendicular to the planets' equatorial planes, and where they rotate once for each orbit around the planet, keeping the same face of the moon pointed at the planet at all times. Charon and Pluto are mutually tidally locked. But Styx, Nix, Kerberos, and Hydra, although lying in the Pluto-Charon equatorial plane in circular orbits, have wacky rotation states, with axes pointed every which way, and non-synchronous rotation. Hydra, in particular, rotates once in 10 hours!". And attached a video In titled"Pluto's Spinning Moons" .

SOLUTIONS

According to the CBB Hypothesis which published in 2013 in my book entitled "Compound Balance Balls Hypothesis ... approach in astronomy,"

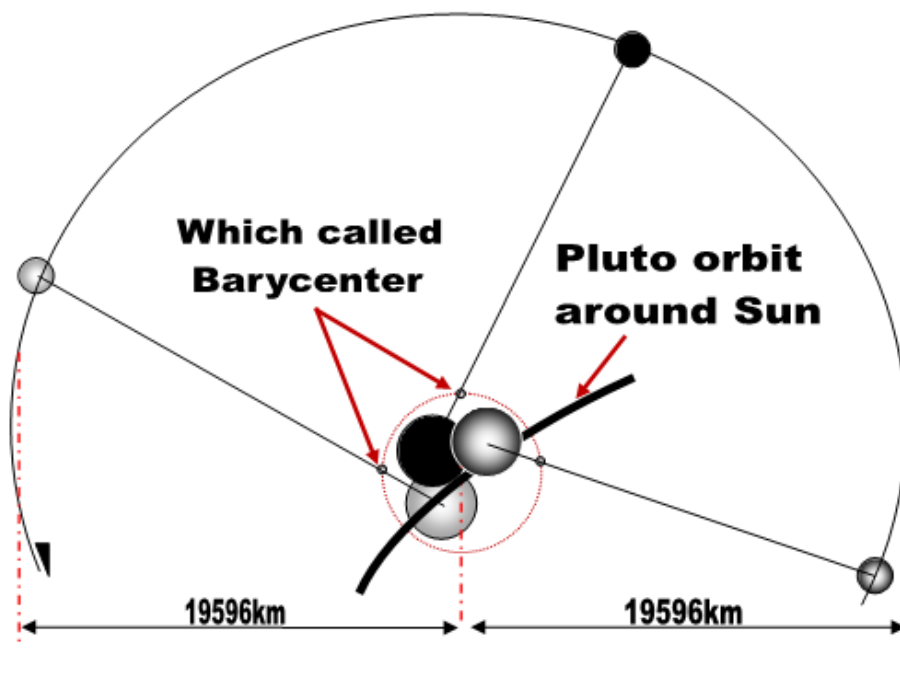
Specify the sixth and seventh laws (binary system laws)

Sixth law:

((Binary system balance for orbs: whenever a large relatively orb subdues another small relatively orb to rotate around it. In the same time the small relatively orb keep rotate the large relatively orb (each one effect other) where the resultant of effect of regressive/ vibratory movement (rotate) be equals the radius of a large relatively orb, so appears to us that a large orb orbit round a fictitious line touches its surface, it whenever ,the resultant of effecting more than the radius of a large orb, so appears to us that the large orb rotate around a fictitious center outside its body.)) page- 72- CBB Hypothesis

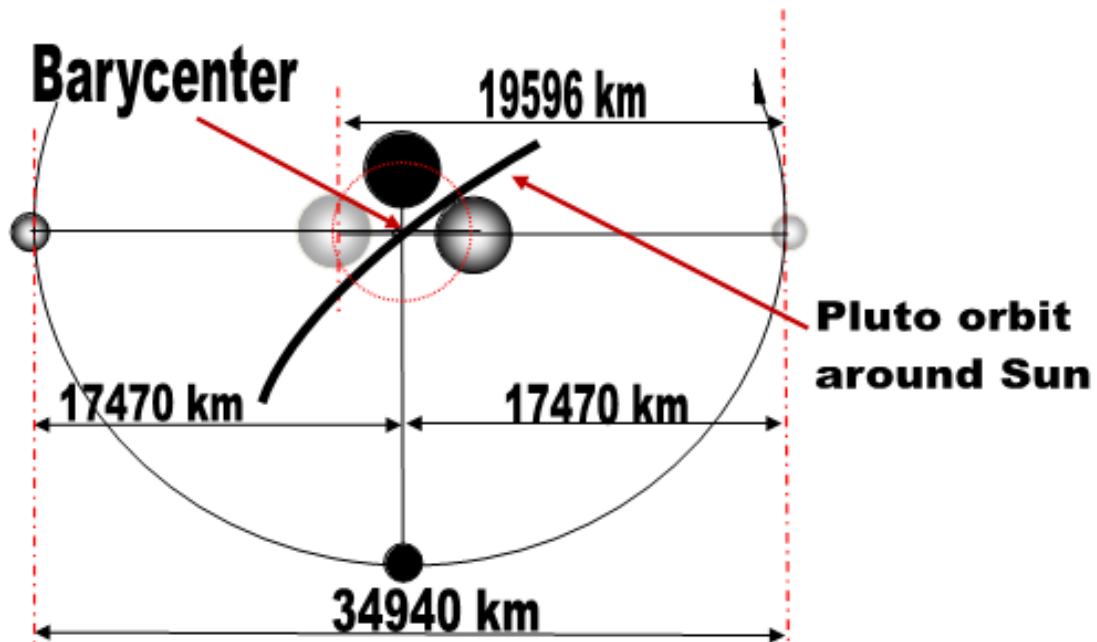
The structure of law relate to previous laws of the CBB Hypothesis, What we understand from law? Is that :This law demonstrate that each orb rotate the other, which means that, Pluto rotate Charon (makes Charon orbiting around Pluto), at the same time Charon rotate Pluto (makes Pluto orbiting around another axis on the opposite side not the barycenter) , as contrary to what NASA said.

According to NASA Pluto and Charon rotate around the barycenter (common gravity center) which is the heart of the route for Pluto and its moons while orbiting around the Sun, If we manage to observe that barycenter we will find it is just a point not in the heart of the route around the Sun ,rather it is spinning approximately (3000-4000 km) around the that heart, as illustrated in the following charts which draws a comparison between CBB Hypothesis and NASA interpretation.



Binary system motion's shape for Pluto and Charon, according to Hypothesis Compound Balance Ball, where Pluto rolling (rotate) Charon and Charon rolling (rotate) Pluto with no barycenter.

For Researcher and Astronomer: Adnan Alshawafi



Binary system motion's by graphic without scale,
Where Pluto and Charon rolling (rotate) around a
BaryCenter where its location outside Pluto and
Charon.

According to NEW HORIZON - NASA

What is described a barycenter by NASA is ground less, as this demonstrates that Charon's orbit at a distance of 17,470 km from the barycenter, meaning Charon's orbital velocity is 198.91 meters per second, which is contrary to NASA observations (Charon's orbital velocity is 0.23 km/s).

We strongly believe that NASA's tells the truth, regarding Charon's orbital velocity based on telescope observation, other ways, are mere unsubstantiated explanations, which triggered widespread criticisms all around the world, specially the American society- the leader in this realm of science, for example, American blogger **Raymond Towers** published an article entitled "NASA /New Horizon stop obscuring Pluto facts by **Adnan Alshawafi**" He is very excited to forward my words and my thoughts to NASA and New Horizon to help them, the science is based on participation, He believes that concealing the facts will not last long. This man holds a vision, I may not know much about him, but he has an idea to share, we believe innovative ideas are different from stereotype ones upon the first glance, and if you consider them you will find out they worth it.

If we believe barycenter is outside bodies in case of binary system (Pluto – Charon) as released by NASA, this poses these questions:

1. Had they identified the shape of gravity as linear from Pluto's center to Charon's center ... ,in the same time denied gravitational waves while could not prove the linear shape of gravity attraction.
If the center of mass (barycenter) is between Pluto and Charon outside their bodies, which

cause Pluto and Charon to rotate around it either as waves or as particles or unobserved ropes, what type of ropes: solid or otherwise coefficient of elongation and stretch

2. If setting on the surface of Pluto and you throw an apple...would you find it on the surface of Pluto, or travelling to the barycenter outside Pluto.
3. Pluto and Charon are in continual orbital resonance motion (complex orbital dance) and they are not in the same spatial dimension (the fourth dimension).Hence, the barycenter out said bodies means that liner gravity must be transmitted from Pluto to Charon at zero time at infinity velocity to be able to cross the difference in spatial dimension between Pluto and Charon, Those , the barycenter out said bodies makes it imperative that the velocity of light is not the fastest, and that the law of causality is not actually a law.
4. If we believe the barycenter outside bodies of Pluto and Charon Does it mean that solar system and the entire Milky Way are coupled with other galaxies (galaxies at the local group) through barycenter, accordingly, the entire Milky Way has no mass because the mass in this case is already at the barycenter Or Milky Way might have a binary system with bigger groups of galaxies ... Or it may be at the barycenter of the universe etc.

Inductive reasoning says, If we have strong evidence about the fact that Pluto and Charon prove to have barycenter out said bodies, we can say this fact is the conclusion of an argument inductive potential that the mass of Milky Way is located far from the galaxies evidenced about Pluto and Charon, while scientists using the same methodology proved that constant of general attractions (G) is a great to measure the mass of all systems in the universe, however, they tested it to measure gravity of Earth.

We believe that some constant or interpretations may be able to describe the event from a limited angle or limited period not fully. what applies on partial can be circulated to the overall by inductive reasoning during a certain period, but must correction when we examine one of the cases that were possible, whether potential case partial of the total, this is the logical abstract.

So the constant of general attractions (G) was an accurate constant explained the Earth's mass (mass as a source of gravity) that control attraction between Earth with Sun at the same why for the Planets with Sun.

But when we used the constant of general attractions (G) to calculate the mass of moon around planet such as Pluto's moons to give a wrong GM for some moons close to zero.

Here we have to mention to seventh law of CBB Hypothesis

Seventh law

((Binary orbs join balanced with another compound systems or orbs: The binary orbs accede with large systems through the second fictitious compound ball (by new identity for each) of all binary orbs, Also binary orbs it harmonize with another single orbs in second subordination system where it is the resultant of the orbital velocity equation for both as a single orbs or that as a binary orbs around the center of subordination system (for big orb only– not barycenter), Where that multiplied the square root of semi-major axis with orbital velocity equal constant in the same system.))Page 73 CBB Hypothesis

The structure of law relate to previous laws of the CBB Hypothesis, What we understand form law? Is that :

Include the eighth mathematical equation of CBB hypothesis :

$$\sqrt{a} \times v_0 = \text{constant}$$

This law demonstrate the outcome are equals for both binary system (Charon orbiting around Pluto) and subordination system (others Pluto's moons orbiting around Pluto), in other words, Charon orbiting around Pluto not around barycenter , in this case CBB Hypothesis prove Kepler's third law realized in all moons of Pluto turning again to the second table in this seminar, on contrary to the idea of is Charon orbiting around barycenter.

This law demonstrate the orbital velocity don't depend on mass where the mass (M) multiplied general attraction constant (G) equal a constant, and called this new constant AD

AD constant demonstrate important things

- AD constant explain the ability (gravity force) of central orb (Pluto) that rotate another orbs (moons), like ability central orb (Sun) rotate planets (planets orbiting around sun), also the ebicenter of galaxy rotate (orbiting) stars. This force proportional with the square root of the distance, because the ability of force tie up to the central orb only.

Therefore, we have to go to <http://nssdc.gsfc.nasa.gov/planetary/factsheet/>

We find Mercury's orbital velocity is 38.86 km/ s at a distance of 69.82×10^6 km from the sun.

We find Mercury's orbital velocity is 58.98 km/ s at a distance of 46.00×10^6 km from the sun.

The mass of Mercury is fixed and the mass of Sun is fixed

This poses these questions

what is change in, to make Mercury change orbital velocity from 38.86 km □ s to 58.98 km □ s ... what happened in it, we know the Mercury's mass is fixed and the mass of Sun is fixed, so no relation between mass and orbital velocity. The Kepler's laws just described the motion don't gave the reasons.

To understand the reasons of begin Mercury change orbital velocity according to CBB Hypothesis because orbital inclination change AD constant, The orbital inclination of Mercury has relation with Surface acceleration of the Sun .. etc. which control Mercury's orbital velocity, to calculate it we have to back to previous laws of CBB Hypothesis.

Here an example to know how G lead us to the wrong valuation in mass

The general attraction constant (G) lead us calculate mass through the gravity force of the Sun to used it to calculate the mass of moons a round planet look to following table according to data released by NASA

	Mass (10^{20} kg)	Mean radius (km)	Mean density (kg/m ³)	Semi-major axis (10^3 km)
Mercury Is a planet around Sun	3301	2439.7	5427	57,910
Ganymede Is a moon around Jupiter	1481.9	2631.2	1940	1,070.4

From the table we find the moon Ganymede is bigger than Mercury

Volume of Mercury = 60827157364 km^3

Volume of Ganymede= 76304442546 km³

That means

Volume of Ganymede = 125.44%volume of Mercury

Mass of Ganymede = 44.89%Mass of Mercury

That because find the mass of Mercury by the mass of Sun and find the mass of Ganymede by the mass of Jupiter

If we suppose Mercury is a moon orbiting around Jupiter to take the place of Ganymede the laws conclude its mass is smaller than we know, and if we suppose Mercury is a moon orbiting around Earth the laws conclude its mass is too small.... But logical reasoning say that the density of Ganymede be larger than density of Mercury because it is larger and the pressure be higher at its center.

So the (G) is a problem and no relation between (M) mass and orbital velocity, So CBB Hypothesis consider GM is a constant and called it (AD constant) which mean the ability of the orb (large orb) to effect other small orbs (by rotate) that because the large orb as vested this force (ability) as a result of its rotation in the space.

(AD constant) excel the constant of Kepler's third law because the error of Kepler's third law revert to the Orbital eccentricity and we don't know the reasons of the Orbital eccentricity, **But the** error of AD constant we know the reasons of it, we have to back to previous laws of CBB Hypothesis to know this error revert to an other factors that control the balance of orbs, such as Sidereal rotation velocity and Orbital inclination..etc. we can calculate error of AD constant

Kepler's third law studied the one elliptical level for the movement of planet around the Sun, But the CBB Hypothesis studied the three elliptical levels for the movement of planet around the Sun, it interested about what happened in a planet and what happened in Sun to understand why planets orbiting around the Sun in elliptical way not in circular.

N	Orbs	Orbital	Orbital	Semi-major axis		Constant by Kepler's law	Constant by hypothesis's law
		Period -day	Velocity /m-s	m	square root	$\frac{P^2}{a^3} = constant \times 10^{20}$	$\sqrt{a} \times v_0 = constant$
1	mercury عطارد	88	47,400	57,900,000,000	240,624	29.78222	11,405,577,600
2	venus الزهرة	225	35,000	108,200,000,000	328,937	29.75444	11,512,795,000
3	earth الارض	365	29,800	149,600,000,000	386,782	29.73680	11,526,103,600
4	mars المريخ	687	24,100	227,900,000,000	477,389	29.76514	11,505,074,900
5	jupter المشتري	4,331	13,100	778,600,000,000	882,383	29.66611	11,559,217,300
6	saturn زحل	10,747	9,700	1,433,500,000,000	1,197,289	29.26907	11,613,703,300
7	uranus اورانوس	30,589	6,800	2,872,500,000,000	1,694,845	29.46985	11,524,946,000
8	neptune نبتون	59,800	5,400	4,495,100,000,000	2,120,165	29.39083	11,448,891,000
The largest number						29.76514	11,613,703,300
The smallest number						29.26907	11,405,577,600
Deviation =((The largest number-The smallest number) / The smallest number)×100						1.69	1.82

N	Orbs	Orbital	Orbital	Semi-major axis		Constant by Kepler's law	Constant by hypothesis's law
		Period	Velocity	Semi-major axis		$\frac{P^2}{a^3} = \text{constant}$	$\sqrt{a} \times v_o = \text{constant}$
		day	/m-s	m	square root	$\times 10^{15}$	
1	Chron	6	223	19,596,000	4,426	0.54215	986,998
2	Nix	25	143	48,690,000	6,978	0.53497	997,854
3	Hidra	38	123	64,720,000	8,045	0.53828	989,535
4	Kerberos	32	131	57,750,000	7,599	0.53734	995,469
5	Styx	20	153	42,410,000	6,512	0.53281	996,336
The largest number						0.54215	997,854
The smallest number						0.53281	986,998
Deviation = ((The largest number - The smallest number) / The smallest number) × 100						1.75	1.10

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